Santa Clara Valley Water District

Water Use Efficiency Program

YEAR END REPORT

FISCAL YEAR 2007-2008

Santa Clara Valley Water District

OUR MISSION

The mission of the district is a healthy, safe, and enhanced quality of living in Santa Clara County through watershed stewardship and comprehensive management of water resources in a practical, cost-effective, and environmentally sensitive manner.

5750 Almaden Expressway
San Jose, CA 95118
(408) 265-2600
www.valleywater.org

ABOUT THE SANTA CLARA VALLEY WATER DISTRICT

The Santa Clara Valley Water District is the primary water resources agency for Santa Clara County, California. It acts not only as the county's water wholesaler, but also as its flood protection agency and as the steward for its streams and creeks, underground aquifers and district-built reservoirs.

As the county's water wholesaler, the water district makes sure there is enough clean, safe water for homes and businesses. As the agency responsible for local flood protection, the water district works diligently to protect Santa Clara Valley residents and businesses from the devastating effects of flooding.

Our stream stewardship responsibilities include creek restoration and wildlife habitat projects, pollution prevention efforts and a commitment to natural flood protection.

BOARD OF DIRECTORS

From left: Richard Santos, Joe Judge, Rosemary Kamei, Tony Estremera, Sig Sanchez, Patrick Kwok and Larry Wilson.

Rosemary Kamei	District 1
Joe Judge	District 2
Richard P. Santos	District 3
Larry Wilson	District 4
Patrick Kwok	District 5
Tony Estremera	At Large
Sig Sanchez	At Large

FROM THE OFFICE OF THE CEO

This seventh annual Water Use Efficiency Program Year End Report documents the actions taken by the Santa Clara Valley Water District in achieving water use efficiency goals for fiscal year 2007/08.

As the second dry year in a row, FY 07/08 had many water supply challenges. Along with low rainfall and reduced Sierra snowpack, a federal court ruling to curtail pumping from the Sacramento-San Joaquin Delta further restricted the amount of available water.

Despite these significant challenges, the District's careful planning and investments in a diverse portfolio of groundwater reserves and other water supply resources helped us meet our goals. Our Water Use Efficiency Program is a key part of this portfolio, with nearly 60,000 acre-feet of water savings in FY 2007/08 – enough water to fill Lexington Reservoir three times over.

We are pleased to report that in 2007, the District's water use efficiency achievements were recognized by the U.S. Environmental Protection Agency, which honored the district with its Water Use Efficiency Leadership Award in the category of government agency. The award recognizes companies, utilities, government organizations and individuals that display leadership, innovation and water savings, as well as inspire, motivate and recognize efforts to improve water efficiency.

The District has continued to take a leadership role to advance water conservation policy both at the state and national levels. The Water Use Efficiency staff provided input during the California Urban Water Conservation Council's Best Management Practices updating process. Implementing these best management practices is required under the California Urban Water Management Planning Act, the Central Valley Project Improvement Act and as a prerequisite to obtaining state grant funding.

Our energy and water report, "From Watts to Water: Climate Change Response through Saving Water, Saving Energy, and Reducing Air Pollution," was received very positively, and the report's findings were presented at several national conferences.

From the Office of the CEO
Sharon Judkins
Chief Executive Officer

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WUE UNIT INTERNS FOR FY 07/08

Standing, from left: Becky Olsen, John Fosnaugh, Elizabeth Sarmiento, Michael Gonzales, Sven Rosengreen, Amber Pacheco. Sitting, from left: Erica Silva, Justin Finch, Julianna Whittmann and David Nguyen.

WUE UNIT STAFF FOR FY 07/08

(From left): Hossein Ashktorab, Pam John, Karen Morvay, Toni Vye, Bob Siegfried, Kurt Elvert, Jeannine Larabee, Keith Whitman, Ray Wong, Kevin Galvin, Jerry De La Piedra, Stanley Zhu.

WATER UTILITY ENTERPRISE:

Jim Fiedler, Chief Operating Officer

WATER SUPPLY MANAGEMENT DIVISION:

Keith Whitman, Water Supply Operations and Maintenance Division

WATER USE EFFICIENCY UNIT STAFF:

Hossein Ashktorab, Unit Manager
Jerry De La Piedra, Program Administrator
Kurt Elvert, Water Conservation Specialist I
Kevin Galvin, Senior Water Conservation Specialist
Pam John, Senior Civil Engineer
Jeannine Larabee, Water Conservation Specialist II
Karen Morvay, Water Conservation Specialist II
Robert Siegfried, Assistant Civil Engineer II (Agricultural)
Toni Vye, Project Assistant
Ray Wong, Associate Engineer (Civil)
Stanley Zhu, Senior Civil Engineer

EXECUTIVE SUMMARY

The Santa Clara Valley Water District's (Valley Water) water conservation and water recycling programs are a **key part of its core business,** providing about 14 percent (or roughly 60,000 acre-feet in FY 07/08) of the district's total water supply. Valley Water is planning on raising this percentage significantly; **by the year 2030, Water Use Efficiency (WUE) programs, which may include desalination in addition to water conservation and water recycling, will account for roughly 25-30 percent of the total water supply.**

Water Use Efficiency programs **reduce demand on existing water and energy supplies,** helping to lessen the costs and environmental impacts of developing additional supplies. In addition to helping to meet long-term water reliability goals, WUE programs also help meet short-term demands placed on supply during critical dry periods as well as during a regulatory drought. These programs will also protect the South Bay salt-marsh habitat and the endangered species that live there by reducing freshwater effluent released from wastewater treatment facilities.

The district's Water Conservation and Recycling programs provided roughly 60,000 acre-feet of water in FY 07/08-enough to fill Lexington Reservoir three times over.

These programs assist the district in meeting its Board Ends Policies for water supply reliability, water conservation and water recycling. The Board's policies, in conjunction with the district's 2003 Integrated Water Resources Planning Study (IWRP) and 2005 Urban Water Management Plan (UWMP), require that: Water conservation is implemented to the maximum extent

Lexington Reservoir

Example of local garden that is beautiful and water efficient.

that is practical; Water recycling be expanded within Santa Clara County in partnership with the community; and a variety of water supply sources are available to minimize risk.

This seventh Year End Report provides an overview of achievements in Fiscal Year 07/08, and a look at current water use efficiency programs, including water conservation, water recycling and desalination. The report also looks at new and future projects, partnerships and research completed.

Valley Water was honored to receive two national awards this year:

- The **U.S. Environmental Protection Agency Water Use Efficiency Leadership Award** in 2007. The EPA's Water Efficiency Leader Awards foster national water efficiency. Winners were chosen by a panel of national water experts and based on three criteria: leadership, innovation and water saved.

- The **WateReuse Association's Educator of the Year Award.** This award is for public education that promotes increased water reuse and water recycling. Valley Water focused on educating school children and the public on the value of water and the importance of water conservation and water recycling.

Fiscal Year 07/08 proved to be a significant year for Valley Water on a statewide and national level. On the state-wide scene, staff participated in the updating process of the California Urban Water Conservation Council Urban Water Conservation Best Management Practices. Valley Water's energy and water report, **"From Watts to Water: Climate Change Response through Saving Water, Saving Energy, and Reducing Air Pollution,"** proved to be a popular topic this year; staff presented the report's findings at several national conferences.

In FY 07/08, the district was honored to receive the U.S. EPA Water Use Efficiency Leadership Award.

This report, "Watts to Water," released in mid-2007, provides an analysis of the energy savings and air quality benefits provided by Valley Water's comprehensive suite of water conservation and water recycling programs. The programs have resulted in cumulative savings of 487,000 acre-feet (AF) of new water supplies between FY 92/93 and FY 07/08. In addition to saving water and providing greater water supply reliability, water conservation and water recycling programs save energy and thereby reduce air pollutant emissions, including carbon dioxide, a greenhouse gas that contributes to global warming. The analysis, which was recently updated with data from FY 07/08 and current energy and air emissions factors, shows that **Valley Water's water conservation and water recycling programs have resulted in savings of approximately 1.82 billion kilowatt-hours (kWh) of energy**, which represents a financial savings of $236 million (in residential electricity rates) and is **equivalent to the annual electricity required for 265,136 households.** Through saving this energy, approximately 429 million kg of carbon dioxide emissions were eliminated, which is **equivalent to removing 78,263 passenger cars from the roads for one year.**

WATER CONSERVATION PROGRAMS

INDOOR PROGRAMS - RESIDENTIAL		
Program Name	*Program Participation for FY 07/08*	*Total Program Participation To Date*
Water-Wise House Call Program	2,991 surveys	26,007 surveys
Residential High Efficiency Toilet Rebate Program	1,470 rebates	2,106 rebates
Residential Clothes Washer Rebate Program	10,163 rebates	78,351 rebates
Showerhead/Aerator Distribution Program	13,996 units distributed	254,111 units distributed
Water Softener Replacement Rebate Program	539 rebates	998 rebates
LANDSCAPE PROGRAMS – RESIDENTIAL & COMMERCIAL		
Program Name	*Program Participation for FY 07/08*	*Total Program Participation*
Weather-Based Irrigation Controller (WBIC) Installation/Rebate Program	48 installations; 26 rebates	469 installations; 26 rebates
Irrigation Technical Assistance Program (ITAP)	112 surveys	1,008 surveys
Irrigation System Hardware Rebate Program (ISHRP)	7 rebates	9 rebates
Residential Irrigation System Hardware Rebate Program (RISHRP)	10 rebates	10 rebates
Water Efficient Landscape Rebate Program (WELRP)	46 rebates	101 rebates

COMMERCIAL/INDUSTRIAL/INSTITUTIONAL PROGRAMS (CII)		
Program Name	*Program Participation for FY 07/08*	*Total Program Participation To Date*
Commercial Clothes Washer Rebate Program	166 rebates	2,817 rebates
Commercial/Industrial/Institutional (CII) & Multi-Family (MF) High-Efficiency Plumbing Retrofit Program (HETs and Urinals)	3,114 installed	8,432 installed
Commercial Water Survey Program	39 surveys	156 surveys
Water Efficient Technologies (WET) Program	6 projects, cost-shared with the City of San Jose	76 projects
Pre-Rinse Sprayer Program	196 installed	4,295 installed
Mobile Home Submeter Installation Program	305 installed	1,492 installed
Pilot Commercial Water Softener Rebate Program	2 rebates	2 rebates

EDUCATION/OUTREACH	
Program Name	*Description*
Water Efficient Demonstration Garden	Valley Water is in the process of designing and constructing a one acre water efficient demonstration garden. The goal of the garden is to provide an education resource, test facility and learning center that will showcase environmentally sound and cost-effective landscaping alternatives.
Media Campaign	Each year Valley Water implements a county-wide water conservation media campaign that includes a mix of the following: television, radio, newspapers, transit ads at bus stops and on buses, theater ads, bill inserts, postcards, door hangers, direct mailings and brochures.
Nursery Program	Valley Water partners with local nurseries to distribute water conservation information through display racks.
Workshops	Each year the district hosts various free workshops for homeowners and landscape professionals. Topics include: selecting plants for your water-wise garden, water-efficient irrigation design, water-wise garden design, gardening with natives, basic hydraulics of an irrigation system, how to increase distribution uniformity, and common mechanical and electrical problems.
Events	Each year Valley Water promotes water use efficiency at numerous community events including gardening workshops, Earth Day events, environmental fairs, trade shows, etc. Valley Water is also a sponsor of the Going Native Garden Tour.

WATER RECYCLING PROGRAMS

Recycled Water Program (administered by various Santa Clara County agencies)	*Recycled Water Use/Potable Water Savings*
South Bay Water Recycling Program	10,386 AF/year
Sunnyvale Water Pollution Control Plant	1,157 AF/year
South County Regional Wastewater Authority	2,311 AF/year
Palo Alto Regional Water Quality	2,878 AF/year
TOTAL FOR FY 07/08	**16,732 AF/YEAR**

Replacing an old faucet aerator for an efficient one.

WATER CONSERVATION

OVERVIEW

Besides meeting long-term water reliability goals, water conservation programs help meet short-term demands placed on the water supply system during critical dry periods. These programs also reduce the occurrence of demand reduction requirements made to water retailers and reduce wastewater flows to Bay Area treatment plants, protecting the Bay's salt-marsh habitat.

In Fiscal Year 07/08, the water conservation programs saved a total of 42,500 acre-feet of water.

The water conservation program experienced another successful year, both in terms of water saved—reaching an annual total of about 42,500 acre-feet in FY 07/08—and in terms of programs, research and partnerships.

Valley Water continues to expand programs in the residential sector, which remains one of the key areas for water conservation. Valley Water employs a strategy of incentives and rebates, one-on-one home visits with free installations of water-saving devices, workshops, and outreach at community events to promote residential water savings.

In FY 07/08, the total annual water savings attributable to all residential conservation programs reached 28,700 acre-feet.

Checking the water pressure during a Water-Wise House Call.

WATER-WISE HOUSE CALL PROGRAM

Valley Water has been providing the Water-Wise House Call Program to county residents at no cost since 1998. This program is available to residents of single family homes and to owners/managers of apartments, condominiums and mobile home complexes. During the survey, technicians check for toilet flapper leaks, measure fixture flow rates, offer conservation information, and install free toilet flappers, showerheads and aerators. Surveyors also test the customer's irrigation system for uniformity, calculate and program a personalized irrigation schedule, and provide landscaping tips.

Valley Water performed 2,991 residential home surveys during FY 07/08. Over 26,000 home surveys have been completed since the program began.

LOW-FLOW SHOWERHEAD AND AERATOR DISTRIBUTION PROGRAM

In FY 07/08, Valley Water distributed 6,333 aerators and 7,663 low-flow showerheads. Showerheads and aerators are provided, free of charge, to the public and to local water retailers. They are also installed in residences during Water-Wise House Calls. Over 254,000 showerheads and aerators have been distributed since the program started.

RESIDENTIAL CLOTHES WASHER REBATE PROGRAM

Valley Water began offering rebates for new, water efficient clothes washers in 1995. This effort continued through FY 07/08.

- For FY 07/08 10,163 rebates were issued, more than any other fiscal year.
- Since the program began, over 78,300 rebates have been issued.
- The rebate amount provided varied from $100 to $150, depending on the efficiency of the machine from July 2007 through Dec. 31, 2007. Beginning Jan. 1, 2008 the rebate changed to a combined water and energy rebate of either $125 or $200 for eligible PG&E customers.

The Consortium for Energy Efficiency rates the efficiency of individual machines and categorizes them in tiers with the most efficient machines being placed in the highest tier. For the entire fiscal year only the two highest tiers, Tier 2 and 3, were rebated. Despite the Program's requirement for more efficient machines, participation levels remained the same.

For the first six months of FY 07/08, the thirteen Bay Area water agencies who participate in this rebate

program continued talks with PG&E to merge rebate programs. This partnership, which began on Jan. 1, 2008 allows customers to apply using one application form for both the water and energy rebate. This program continues to transform the market by only offering rebates on the most efficient machines while making it easier for customers to apply for their rebate.

RESIDENTIAL HIGH-EFFICIENCY TOILET PROGRAM

Valley Water's High Efficiency Toilet (HET) Program began in FY 04/05 and continues to provide a $125 rebate to residents when they replace their old inefficient (3.5 gallons per flush or more) toilets with new HETs. HETs use at least 20 percent less water than the federally regulated 1.6 gpf toilets and include three types of technologies: pressure assisted flush, which utilizes a flush valve similar to commercial grade toilets; dual flush toilets which have full and half-flush options; and gravity flush toilets.

Valley Water issued 2,106 HET rebates since the program began in FY 04/05. In FY 07/08, a total of 1,470 rebates were issued, more than any other fiscal year.

In FY 07/08, a total of 1,470 residential HET rebates were issued, more than in any other fiscal year.

WATER SOFTENER REPLACEMENT REBATE PROGRAM

Building on the experience and lessons learned from the pilot program, a full-scale water softener replacement rebate program was developed. The program is a regional effort among Valley Water, San Benito County Water District, and South County Regional Wastewater Authority (SCRWA).

The pilot program, which began in November 2003 and concluded in September 2004, provided 400 Santa Clara County residents with a rebate of $150 for the replacement of their pre-1999 inefficient water softener system with a more efficient, newer system. In July of 2007 the program was implemented as a full-scale program, with grant funding for 2,000 rebates at $150 each for San Benito County and Santa Clara County residents.

In FY 07/08, 539 rebates were issued. Since the program began, 998 rebates have been issued.

Valley Water and the San Benito County Water District jointly received a $300,000 grant from the California Department of Water Resources under Proposition 50. Valley Water is receiving $150,000 from the grant, which will go toward 1,000 Santa Clara County rebates of $150 each for the replacement of older water softeners.

As a regional effort, SCRWA contributed $30,000 towards an additional 200 rebates earmarked specifically within SCRWA's jurisdiction in the county. That area, Morgan Hill and Gilroy, has mostly hard water and therefore a prevalence of water softening devices. A water softener replacement rebate program is one solution to managing salt entering the SCRWA facility. Valley Water and the cities of Morgan Hill and Gilroy continue joint efforts to educate residents in the SCRWA service area regarding salinity issues.

New efficient water softener

A residential landscape before the Water-Efficient Landscape Rebate Program…and after.

On average, about half of the water used by residents in the county goes to irrigating outdoor landscape. Having focused attention for many years on indoor water use, the district has now turned its attention to landscape irrigation—the area Valley Water sees as having the greatest potential for water savings in the residential and commercial sectors. Valley Water's WUE program offers a variety of programs, from irrigation evaluations and rebates for water-efficient irrigation equipment to classes and workshops, which help businesses and homeowners become as efficient as possible. The water savings attributed to these programs for FY 07/08 is about 2,300 acre-feet per year.

WATER-EFFICIENT LANDSCAPE REBATE PILOT PROGRAM

The Water Efficient Landscape Rebate Pilot Program (WELRP) began in December 2005. It is designed to help customers replace high water using landscapes, such as unused or unwanted irrigated turf grass, with Valley Water-approved low water use plants and/or permeable hardscape.

In FY 07/08, Valley Water, the City of Morgan Hill and the City of Palo Alto formed a partnership for this program to share rebate costs for residents of Morgan Hill and Palo Alto.

The rebate for this program is $75 per 100 sq. ft. for customers in Santa Clara County. Morgan Hill and Palo Alto customers receive $150 per 100 sq. ft. of converted landscape. Maximum rebates are:

- $1,000 for single family residences
- $10,000 for commercial, institutional, industrial, and large landscape multi-family properties
  (Maximum rebates and rates are doubled in Morgan Hill and Palo Alto)

In FY 07/08, 46 rebates were issued resulting in over 100,000 square feet of high water using landscape removed.

IRRIGATION TECHNICAL ASSISTANCE PROGRAM

Valley Water has been providing technical assistance to large landscape managers since 1995 through the Irrigation Technical Assistance Program (ITAP). Technicians check the irrigation system for inefficiencies, determine an optimum water use budget, and make site-specific recommendations to improve water management. ITAP participants can potentially save up to 1,500 gallons per acre per day, representing a potential $1,000 per acre cost savings annually.

Valley Water provided 112 sites with ITAP services in FY 07/08. This is a record number for the program, with more completed than in any other fiscal year. Since the program's inception, over 1,000 parks, golf courses, large commercial sites, and large residential developments have received ITAP evaluations.

The district provided 112 sites with ITAP services in FY 07/08, more than in any other fiscal year.

LANDSCAPE AREA MEASUREMENT AND WATER USE BUDGETS STUDY

In 2002, Valley Water used multi-spectral images to identify landscape and agricultural areas by parcel for over 900 square miles in Santa Clara County. These images were then used to categorize types of surfaces (such as areas of turf grass, trees, landscaping, water features, bare ground, hardscape, etc.) for each parcel. This information was used to calculate an optimal water budget for sites around the county.

Concurrently, Valley Water, along with Cal Poly's Irrigation Training and Research Center, is developing web-based software that allows county water users to receive a site-specific water budget on-line by entering their contact information, meter readings, and other data. This countywide water budget database will allow on-line users to compare their actual water usage with recommended amounts for their specific area.

IRRIGATION SYSTEM HARDWARE REBATE PROGRAM (for commercial large landscape)

This program aims at achieving difficult-to-attain but cost-effective water conservation on sites with one acre or more of irrigated landscape. After participating in Valley Water's Irrigation Technical Assistance Program (ITAP), commercial and residential large landscapes are eligible to receive a rebate of up to 50 percent (up to $4,000) on the cost of ITAP-identified irrigation system upgrades. This program launched in December 2005 and will continue into FY 08/09. Seven rebates were issued in FY 07/08, making a total of nine since the program began.

Qualified purchases, such as an irrigation submeter, can help landscapers determine how much water goes to the landscape.

WEATHER-BASED IRRIGATION CONTROLLER INSTALLATION/REBATE PROGRAM

Valley Water's Weather Based Irrigation Controller (WBIC) Installation Program employs a new generation of irrigation controllers in managing landscape water use. These controllers (also called "smart controllers") utilize temperature data, relative humidity, wind speed and solar radiation to calculate site-specific irrigation schedules. The controllers modify their irrigation schedules daily to remain consistent with the landscape's changing irrigation requirements. The program installed 48 WBICs and provided rebates for an additional 26 WBICs in FY 07/08, for a total of 469 since the program began.

IRRIGATION SYSTEM HARDWARE RETROFIT PROGRAM (for residential landscapes)

By building on the customer information accrued through the Water-Wise House Call Program over the last three years, the Residential Irrigation System Hardware Retrofit Program targets the installation of water-efficient irrigation hardware on residential sites previously identified as having high, unrealized conservation potential. These hardware installations can be expected to produce water savings lasting longer than the savings that can be attained through behavioral change alone. This project began in FY 07/08 and will continue into FY 08/09. In FY 07/08, 10 rebates were issued.

Commercial water use surveyor at work.

The Water Use Efficiency Unit combines education, technical assistance and financial incentives to encourage reduced water consumption among commercial, industrial and institutional water users.

Annual water savings attributable to business conservation programs reached 10,500 acre-feet in FY 07/08.

COMMERCIAL, INDUSTRIAL, INSTITUTIONAL (CII) WATER USE SURVEY PROGRAM

This program for commercial, industrial and institutional (CII) establishments in Santa Clara County began in FY 03/04 and continued into FY 07/08. It provides: a thorough survey of the indoor water use of CII establishments, suggestions for ways to become more water efficient, and recommendations for Valley Water programs that can help fund water efficiency improvements.

Commercial Water Use Surveyor checks flow rate on faucet aerators.

The reports recommend Valley Water programs that can help fund water efficiency improvements, such as the Water Efficient Technologies Program and the Irrigation Technical Assistance Program, to expedite equipment changes and address outdoor water use. Because most of the water savings potential seems to exist in the industrial and institutional sectors, those sectors were targeted.

For FY 07/08, 39 surveys were completed. Since the program began, 156 surveys have been conducted.

WATER EFFICIENT TECHNOLOGIES PROGRAM

The Water Efficient Technologies (WET) Program provides rebates for process, technology, and equipment retrofits that save water. The rebate rate is $4.00 per hundred cubic feet (ccf) of water saved annually with a minimum annual water savings requirement of 100 ccf.

Since 1997, Valley Water and the City of San Jose have maintained a cost-sharing agreement to help fund this program. To date, Valley Water has funded (either entirely or through cost-sharing with the City of San Jose) $828,687 for 76 projects saving approximately 2.24 billion gallons (2.99 million ccf) over the lifetime of the projects.

COMMERCIAL CLOTHES WASHER REBATE PROGRAM

The Commercial Clothes Washer Rebate Program provides laundromats and apartment complexes in Santa Clara County a rebate of $400 for each purchased or leased commercial high-efficiency clothes washer.

Valley Water rebates only the most water efficient machines. By doing this, Valley Water hopes to influence buyers to make the more water-efficient choice. The Commercial Clothes Washer Rebate Program provided 166 rebates in FY 07/08. Since the start of the program, 2,817 rebates have been issued. This year, Valley Water partnered with PG&E to co-market this program, as they have an energy rebate for their customers.

High-efficiency clothes washers at a local laundromat.

COMMERCIAL AND APARTMENT HIGH-EFFICIENCY TOILET INSTALLATION PROGRAM

This program installs high-efficiency toilets (HETs) and urinals (HEUs) in the commercial, industrial and institutional sectors, as well as in the multi-family sector. There have been 438 HETs installed in the commercial sector and 2,676 HETs installed in the multi-family dwelling sector, for a total of 3,114 installations for FY 07/08. Since the program began, over 8,400 HETs have been installed. This program will continue through FY 08/09.

The Commercial and Apartment HET Installation Program completed 3,114 installations for this fiscal year.

MOBILE HOME PARK SUBMETER REBATE PROGRAM

This program, which began as a pilot program in FY 00/01, gives a rebate for every water submeter installed at mobile home parks. During the pilot program, 1,187 rebates were distributed. Water use records from participating mobile home parks showed an average water savings of 23 percent per mobile home. The program was extended and, in FY 07/08, 305 more water submeters were installed, bringing the total for the program since its beginning to 1,492.

PRE-RINSE SPRAY VALVE PROGRAM

Valley Water concluded the Pre-Rinse Spray Valve program this fiscal year, with its contractor installing 196 sprayers in FY 07/08 and 4,295 sprayers since the program began in FY 02/03. Funding was provided by grants from the California Department of Water Resources and the California Public Utilities Commission, as well as local cost-sharing partners.

Since the Pre-Rinse Spray Valve Program began in FY 02/03, over 4,000 valves were installed in Santa Clara County.

COOLING TOWER CONDUCTIVITY CONTROLLER REBATE PROGRAM

Valley Water offers a rebate on cooling tower conductivity controllers.

Valley Water is collaborating with the California Urban Water Conservation Council (CUWCC) to offer a grant-funded rebate program for cooling tower conductivity controllers. Cooling towers are used to regulate air temperature in commercial facilities and use substantial quantities of water; Valley Water's analyses suggest that 50 to 75 percent of them do not use water efficiently. Cooling tower conductivity controllers produce more efficient water use. The cooling tower conductivity controller rebate program began in June 2007. The CUWCC is currently restructuring the program to overcome several unanticipated barriers to implementation. The rebate amount is currently $900 per conductivity controller.

PILOT COMMERCIAL WATER SOFTENER REBATE PROGRAM

The success of the full scale water softener rebate program has prompted additional funding for commercial water softener replacement rebates for Santa Clara County businesses. The Pilot Commercial Water Softener Rebate Program offers rebates for the replacement of older water softeners with newer and more efficient water softeners. The countywide program began in May 2008. For FY 07/08 two rebates were processed.

Valley Water's Water Use Efficiency program conducts growers meetings and provides technical assistance to help growers increase irrigation efficiency. These help growers to comply with non-point source discharge regulations.

ON-LINE IRRIGATION SCHEDULING CALCULATORS

This online resource consists of two calculators: one for fields, vineyards and orchards that are drip irrigated; the other is for sprinkler irrigated fields and orchards. Each of them makes it easy to calculate a crop's irrigation requirements based on a local CIMIS weather station data and the percentage of a field that is shaded by the crop around high noon. These calculators are used to estimate the irrigation water used by a crop since the last irrigation, or to forecast a crop's irrigation requirements for in the coming few days.

CALIFORNIA IRRIGATION MANAGEMENT INFORMATION SYSTEM (CIMIS)

This free service provides daily reference evapotranspiration estimates to growers and landscape irrigators to use for scheduling irrigation. Reference evapotranspiration is the water use of a standardized green grass crop. The evapotranspiration of all other crops can be mathematically related to reference evapotranspiration.

Valley Water owns and maintains one CIMIS weather station at Live Oak High School in Morgan Hill (since 1997), and one station in the Saratoga area. Valley Water's CIMIS weather stations are part of a statewide network of stations from which the California Department of Water Resources (DWR) downloads data nightly. Growers and landscape irrigators can access current evapotranspiration information around the clock by visiting Valley Water's web site at www.valleywater.org.

Valley Water also gathers weather data from so-called "non-ideal" sites. These are sites throughout the county (and the state) which do not meet the specifications for a standard CIMIS site, and which are far removed from reference CIMIS stations. Data from non-ideal sites are correlated with their nearest CIMIS site to develop estimates of reference evapotranspiration for the environment surrounding the non-ideal site. This long-range project gives landscape managers and growers in local microclimates accurate data for their irrigation decisions.

WUE Intern Erica Silva installing a CIMIS station.

2008 WATER CONSERVATION CAMPAIGNS

In FY 07/08, the WUE Unit continued to do direct, targeted marketing for individual water conservation programs. Additionally, in early 2008, print ads were developed in a "testimonial" style, with actual program participants photographed and quoted for the ads. These ran in local papers, in multiple languages, from May until July.

In the later summer, a new advertising campaign was developed and ads for radio, television, print media (both general and ethnic media), theaters and the internet were created. The ads focus on the importance of savings water and simple, practical ways that everyone can do this.

In addition to these outreach efforts, Valley Water also has participated in a Bay Area regional campaign, "Be A Water Saving Hero." These ads showcase six different messages demonstrating easy ways to conserve water and are featured in print, bus, billboard and radio ads, as well as through a dedicated website, www.watersavinghero.com.

WATER USE EFFICIENCY NURSERY PROGRAM

For the last ten years, Valley Water has distributed water conservation information through display racks located at county nursery and garden stores. These display racks contain literature discussing water-wise gardening, efficient lawn watering, drought resistant plants, drip irrigation and Valley Water programs. In FY 07/08, 20 nurseries participated in the program throughout the county.

For the past 16 years, Valley Water has been conducting the Water Efficient Landscape Workshop series to an enthusiastic public.

Over twenty local nurseries display Valley Water's educational material.

WATER-EFFICIENT LANDSCAPING WORKSHOPS FOR HOMEOWNERS

Valley Water held its 16th annual Water Efficient Landscaping Workshop series in March 2008 over four weekends. The topics were: Selecting Plants for your Water-Wise Garden, Water Efficient Irrigation Design, Water-Wise Garden Design, and Gardening with Natives. The workshops are presented by landscape and irrigation experts each spring to provide practical advice on water-efficient gardening. A total of 185 people attended this series of workshops.

Drip soaker hose is delivering water to plants.

COMMUNITY EVENTS

Valley Water promoted water use efficiency at roughly forty community events in FY 07/08, including, environmental fairs, Earth Day events, and many others. These events give Valley Water's WUE program an opportunity to talk to the public directly, and to educate them about water use efficiency with hands-on displays, educational handouts and free, water-efficient device distribution.

GOING NATIVE GARDEN TOUR

Participant in the Going Native Garden Tour 2008

Valley Water co-sponsored the 7th Annual Going Native Garden Tour 2008. The tour was a great success, showcasing 46 native plant gardens throughout Santa Clara and San Mateo counties, with a record 5,500 visitors. Valley Water has sponsored this event since its inaugural year.

The Going Native Garden Tour is the Bay Area's first native garden tour. This community-based event is free of charge to the public. Each tour features home and public gardens in a self-guided tour format. Its goals are to demonstrate reduced water, chemical and pesticide use, improved habitat and the unique aesthetic appeal of gardens designed with California native plants.

SEMINARS FOR AGRICULTURE PROFESSIONALS

Valley Water has presented at growers meetings annually since 1998 on topics relating to water and fertilizer use efficiency, Valley Water programs, farm safety and legal compliance. All meetings have been presented with simultaneous Spanish translation. Drought irrigation strategies for various crops were discussed at this year's winter meeting.

ANNUAL FERTIGATION WORKSHOP FOR IRRIGATORS

The 2008 Annual Fertigation Workshop was held on July 30, 2008. This workshop, presented with UC Cooperative Extension, San Benito County Water District and the Farm Bureaus of Santa Clara and San Benito Counties, is a hands-on field classroom for irrigators and growers. Topics covered include balancing the irrigation system, principles of fertilizer injection, calibration of the injection system and post-injection operations. Simultaneous translation for Spanish speakers was available.

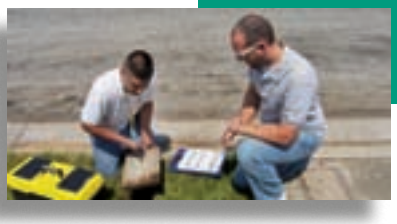
LANDSCAPE IRRIGATION WORKSHOPS FOR PROFESSIONALS

Valley Water conducts a special one-day water conservation workshop each year for landscape professionals. Topics change annually as irrigation issues are identified in the field. In FY 07/08, the workshop covered basic hydraulics of an irrigation system, how to increase distribution uniformity, and common mechanical and electrical problems. Valley Water offers the contractor workshops in both English and Spanish.

Farm Adviser Mike Cahn explaining fertilizer distribution uniformity results at the annual Fertigation Workshop.

Since 1998, Valley Water has presented annual growers meetings emphasizing water use efficiency with a simultaneous Spanish translation.

WATER CONSERVATION CALENDAR OF EVENTS



2007		
DATE	**EVENT**	**LOCATION**
July 18-19, 2007	Owens Corning Sustainability Fair	Santa Clara
July 18, 2007	Bay Area Environmental Safety Group (BAESG) Meeting	Santa Clara
August 8, 2007	Education for Youth & Summer of Service Program (SOS) Children's Discovery Museum	San Jose
August 10, 2007	Medimune Pharmaceutical Health Fair	Mountain View
September 7, 8, 9, 2007	25th Annual South Bay Home and Garden Show	Santa Clara
September 20, 2007	Lockheed/Martin Environmental Fair	Sunnyvale
October 13, 2007	Carlton Elementary School Community Event	San Jose
October 18, 2007	CV Therapeutics Eco-Fair	Palo Alto
November 2, 2007	Power Smart Fair at IDT	San Jose

2008		
DATE	**EVENT**	**LOCATION**
January 10, 2008	Green Plumbers – Certification Workshop	San Jose
January 16, 2008	Presentation to California Native Plant Society (SCV Chapter)	San Jose
February 21, 2008	Presentation to Community Management Services Inc.	Campbell
March 1, 2008	Valley Water's Water Efficient Landscaping Workshop Series	San Jose
March 8, 2008	Valley Water's Water Efficient Landscaping Workshop Series - Gardening with Natives	San Jose
March 15, 2008	Valley Water's Water Efficient Landscaping Workshop Series - Water Efficient Irrigation Design	San Jose
March 21, 2008	Presentation at the Green Business Conference	Palo Alto

March 22, 2008	Valley Water's Water Efficient Landscaping Workshop Series	San Jose
March 26, 2008	International Facility Managers Association (IFMA) Meeting	San Jose
April 12, 2008	Master Gardeners' Spring Garden Market	San Jose
April 19, 2008	Gilroy Earth Day	Gilroy
April 20, 2008	Earth Day	Sunnyvale
April 20, 2008	Going Native Garden Tour	Santa Clara County
April 22, 2008	Earth Day at City of San Jose	San Jose
April 22, 2008	Morgan Hill Earth Day	Morgan Hill
April 23 & 24, 2008	California Apartment Association Expo	Santa Clara
April 23, 2008	Hewlett Packard Environmental Fair	Cupertino
April 24, 2008	Cuesta Park Neighborhood Association (CPNA)	Mountain View
April 24, 2008	Water Conservation presentation to The Villages HOA	San Jose
April 24, 2008	Novellus Earth Day Event	San Jose
April 25, 2008	City of Santa Clara Arbor Day/Earth Day	Santa Clara
April 25, 2008	Earth Day Event at Advantest	Santa Clara
April 28, 2008	California Garden Club Presentation	San Jose
April 29, 2008	Earth Day at XenoPort, Inc.	San Jose
May 1, 2008	Arbor Day Event	San Jose
May 3, 2008	Gavilan College Event	Gilroy
May 7, 2008	Green Plumbers Water Certification Workshop	San Jose
May 14, 2008	Stewardship for Small Acreage	Gilroy
May 15, 2008	Cbeyond & Cisco Going Green Event	San Jose
May 28, 2008	Penitencia Water Treatment Plant Opening Event	Milpitas
June 7 & 8, 2008	Green Fair Silicon Valley	San Jose
June 12, 2008	Juneteenth Celebration	San Jose
June 11, 2008	NEC Electronics Environmental Day	Santa Clara
June 11 & 12, 2008	Bay Area Sustainable Buildings Management Expo & Conference	Santa Clara
June 21, 2008	ECHO (Executive Council of Homeowners) Annual Seminar and Trade Show	Santa Clara
June 22, 2008	Barron Park Green Tour	Palo Alto

This irrigation controller has multiple schedules.

Water use efficiency is a community-wide effort, and it will take the cooperation of many agencies, organizations and water retailers to meet future water supply goals. Valley Water maintains cost-sharing agreements with many cities and utilities to provide water-use efficiency programs for residential and commercial water customers.

Valley Water's WUE program administered $692,382 in cost-sharing agreements in FY 07/08.

Cost-sharing agreements that were active in FY 07/08 included:

- City of Palo Alto: Cost-sharing agreement for a variety of water conservation programs: $160,905
- City of Santa Clara: Cost-sharing agreement for commercial high-efficiency clothes washer rebates: $12,500
- City of San Jose: Cost-sharing agreement for a variety of water conservation programs: $406,977
- California Water Service Company: Cost-sharing agreement for a variety of water conservation programs: $32,000
- City of Morgan Hill: Cost-sharing agreement for the Water-Efficient Landscape Rebate and Residential HET Programs: $50,000
- South County Recycled Water Authority: Cost-sharing agreement for the Water Softener Rebate Program: $30,000

Valley Water also relies on grants from state and federal agencies to help fund program expansion and vital research. Valley Water's WUE program participated in many different on-going grant projects this year, including:

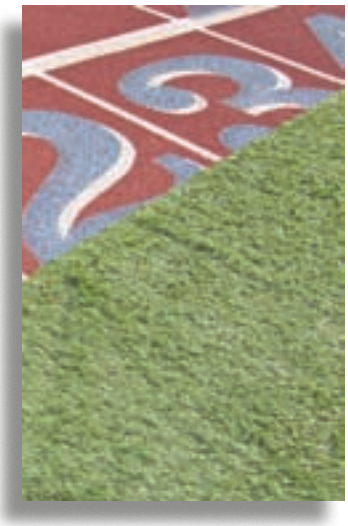
- Weather-Based Irrigation Controller Program: This regional DWR Proposition 13 grant for funding weather- based irrigation controller retrofits began in FY 05/06.
- Demonstration Garden: The district's WUE program was awarded a DWR Proposition 50 grant in FY 05/06 for this program.
- CII and MFD High-Efficiency Toilet Installation Program: This program, funded by a DWR Proposition 50 grant, is designated to help fund the installation of water-efficient toilets in the CII and MFD sectors. This grant concluded in FY 07/08.
- Cooling Tower Conductivity Controller Rebate Program: This program, with DWR grant funding via the CUWCC, commenced in FY 07/08.
- Pre-Rinse Spray Valve Program: This grant-funded program concluded in early FY 07/08.
- Irrigation System Hardware Rebate Program: This DWR Proposition 13 grant-funded program began in FY 05/06.
- Valley Water received a USBR grant of $235,000 for a Residential Irrigation System Hardware Retrofit Program. This program began in FY 07/08.
- Regional High-Efficiency Residential Clothes Washer Rebate Program: This program, to be funded by a DWR Proposition 50 grant, is designed to provide rebate incentives for residents who purchase high-efficiency clothes washers. The entire regional grant amount is $2,981,350 for 13 agencies; the district's share is $675,000. This grant funding will began in FY 07/08.

Valley Water is continually conducting research, on its own and in collaboration with other agencies, to increase water savings and cost-effectiveness in its water conservation programs. Data from the studies and research listed below will be vital in creating an effective, long-range water management strategy for Santa Clara County.

ARTIFICIAL TURF STUDY

Artificial turf has the potential to save substantial quantities of water, and as such, has received considerable attention from the water conservation community. Valley Water is considering offering financial incentives for the installation of artificial turf but is currently conducting a study to determine whether there are any adverse water quality impacts to groundwater or to surface water due to leachate from artificial turf. A preliminary study by Valley Water suggests that heavy metal contamination may be a concern. Toward this end, Valley Water is partnering with Stanford University to conduct a water quality study at field sites around the county where artificial turf has been installed. Valley Water and Stanford University are also conducting laboratory studies of artificial turf concurrently with the field study to better understand water quality impacts. A final report is expected in early 2009.

Artificial turf



Valley Water's Water Use Efficiency Program strives to conduct research that will help further the body of knowledge about water conservation technology and practices.

VALLEY WATER'S WUE PROGRAM STRATEGIC PLAN

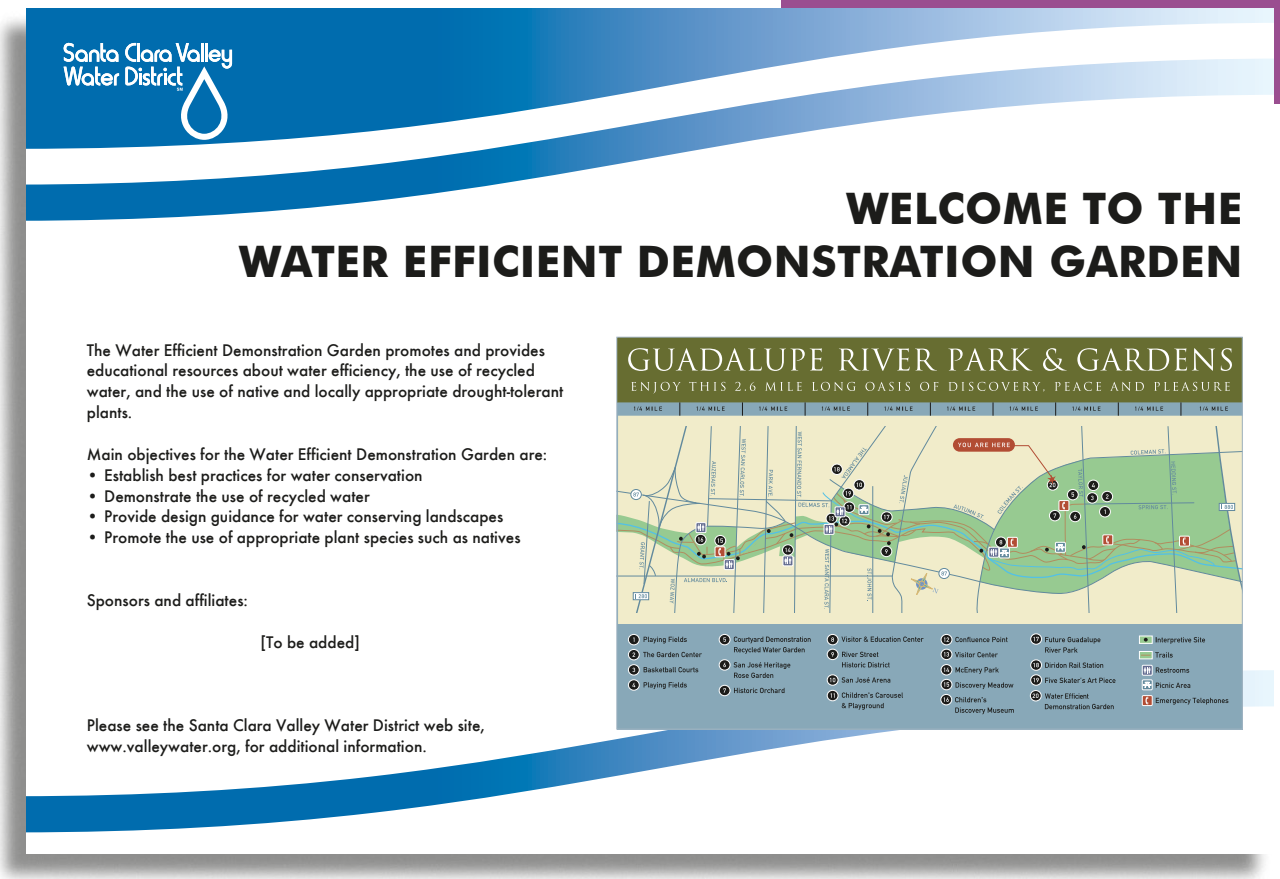
Water conservation, recycling, and desalination are an integral part of the current and future water supply source for the future. The Water Use Efficiency Strategic Plan will establish a road map for the Water Use Efficiency Unit. It will recommend a comprehensive set of programs in the areas of water conservation, recycling, and desalination, along with cost-benefit analyses and savings potential. The plan will also help Valley Water's WUE program fulfill its commitment to the CEO Comprehensive Plan with regard to water conservation and recycling, and is expected to be completed in FY 08/09.

WATER CONSERVATION MARKETING PLAN

This Water Conservation Marketing Plan will create a water conservation marketing strategy for the next five years. The plan will focus on developing a strategy for two planning horizons:

1) the near-term planning for the 2008 spring/summer campaign; and

2) the long-term planning for marketing water conservation programs for the following four years. The plan is expected to be completed by September, 2008.



Water Efficient Demonstration Garden sign, which will be placed at Guadalupe River Park.

DEMONSTRATION GARDEN

Valley Water's water use efficiency demonstration garden will be an educational resource, test facility and learning center showcasing environmentally sound and cost-effective landscaping alternatives. The overall goal of this project is to design and develop a unique demonstration landscaping site that promotes water use efficiency. Its primary purpose is to educate the general public on the use of water-wise plants while promoting efficient irrigation technologies and recycled water use.

Guadalupe River Park, where the Demonstration Garden will be located.

Valley Water is currently developing construction drawings for the 1+ acre garden. To offset some of the construction costs, the Water Use Efficiency Unit applied for and was awarded $146,000 in grant funding through Proposition 50 (Valley Water will be responsible for approximately $48,000 of "in kind" costs which are primarily annual maintenance costs). Valley Water is also working with the City of San Jose Parks and Recreation Department, the Guadalupe Gardens Technical Committee, and the Friends of Guadalupe Park and Gardens to assist in the implementation of the project.

Mallard Slough in Contra Costa County, location of inlet to the Bay Area Regional Pilot Desalination facility.

OVERVIEW

Valley Water collaborates and partners with local agencies and recycled water producers on recycled water development and use. Water demand correlates with the county's population and economy, and will expand as the economy expands. With the Judge Wanger court decisions in FY 07/08 that curtailed Delta water imports, added pressures were put on Valley Water's water supply. Recycled water and desalination are two potential sources of water supply that are integrated into Valley Water's diversified water supply portfolio. These sources are more locally controlled than imported water brought into the county.

Recycled water and desalination are all-weather resources. Increasing recycled water supplies in Santa Clara County will increase overall water supply reliability and augment Valley Water's imported water supply and local surface and groundwater supplies.

Key efforts include:

- The Bay Area Regional Desalination Project feasibility study was completed, and the Pilot Desalination Project work at the Eastern Contra Costa County site was begun.
- The Pilot Brackish Desalination Project is nearly complete. The research partner, Stanford University, will prepare a final report by the end of 2008.
- The Pilot Stream Flow Augmentation Feasibility Project was halted because of a high level of a certain perfluorinated chemical compound in both the stream and the recycled water to be used. The research partner, Stanford University, will prepare a final report by the end of 2008. The district plans to evaluate other sites for the release of recycled water.
- Progress in expanding recycled water through partnerships with recycled water producers improved significantly in FY 07/08:
  - Continued joint Board meeting with South County Regional Wastewater Authority on the topic of a producer, wholesaler and retailer recycled water agreement, and on the production of an environmental document (CEQA) for the South County Recycled Water Master Plan project.
  - Progress towards the Advance Treated Recycled Water Project design and CEQA documentation was significant.
  - Establishment of a Recycled Water Liaison Committee to negotiate a long term recycled water agreement with the City of San Jose to expand the South Bay Water Recycling Program.
  - Joint meeting with the San Jose City Council on April 24, 2008 highlighting water recycling and conservation.
  - Joint meeting with South County Regional Wastewater Authority Board in February, 2008, highlighting water recycling.

WHAT IS RECYCLED WATER IN SANTA CLARA COUNTY?

Recycled water used in fountain and pond.

Quick Facts about recycled water in Santa Clara County

- Recycled water in Santa Clara County has undergone three levels of treatment plus disinfection. This is termed "tertiary treatment."
- All recycled water in this county meets required standards or is of higher quality than required by the standards set by the State for the various uses. The second stage of treatment is sufficient for landscape irrigation according to the state standards; however, all recycled water in Santa Clara County goes above that standard.
- Recycled water is safe and children will not get sick from playing on turf that is irrigated with recycled water.
- Recycled water has been used for irrigation in municipal settings (parks, schools, golf courses), and there has never been a reported instance of a public health problem from using this recycled water.
- The district is planning treatment projects (i.e., advanced treatment) as a way to reduce salts in recycled water to increase potential for recycled water use.

Why is recycled water important to Santa Clara County?

- Recycled water is a drought-proof or all-weather supply, immune from global climate change.
- Use of recycled water for irrigation or industrial use saves potable supplies for drinking purposes.
- Recycled water helps preserve our saltwater and tidal habitat by reducing freshwater discharge to the San Francisco Bay.
- Provides a reliable source of water to the community and private entities that protects their investments in parks and landscaping (i.e., this water will be available even during times of drought).
- A green and healthy environment enhances the quality of life in this county.

Recycled water is highly treated wastewater that is purified through multiple levels of treatment. Wastewater is the resulting product of water that has been used in homes and businesses. Wastewater goes into underground pipes that carry it to a wastewater treatment plant.

In Santa Clara County, there are four wastewater treatment plants that rigorously treat wastewater to remove most of the pollutants before the treated water is discharged into the San Francisco Bay or stored in evaporation ponds. Some of this treated water is further filtered and disinfected to become recycled water that can be put to many beneficial uses, as allowed by the stringent state standards. Some of these uses are landscape irrigation, cooling tower uses, other industrial uses, and dust-suppression during construction.

VALLEY WATER'S POLICY & PLANNING LEADERSHIP IN WATER RECYCLING & DESALINATION

To ensure that the mission of Valley Water is realized, the Board of Directors has established organizational outcomes, or Ends Policies, to be achieved by the CEO and staff. Ends Policies describe the specific outcomes to be achieved, starting with general statements followed by specific descriptions.

The governing Board of Valley Water adopted the following policies that guide recycled water activities at Valley Water:

2.1.4. There are a variety of water supply sources.

- 2.1.4.1. The District's variety of water supply sources is protected.
- 2.1.4.2. The District's water supply sources are further diversified by making new investments in a mix of all-weather supplies, storage, and dry year transfers or option agreements.

2.1.7. Water recycling is expanded within Santa Clara County in partnership with the community, consistent with the District's Integrated Water Resources Plan (IWRP), reflecting its comparative cost assessments and other Board policies.

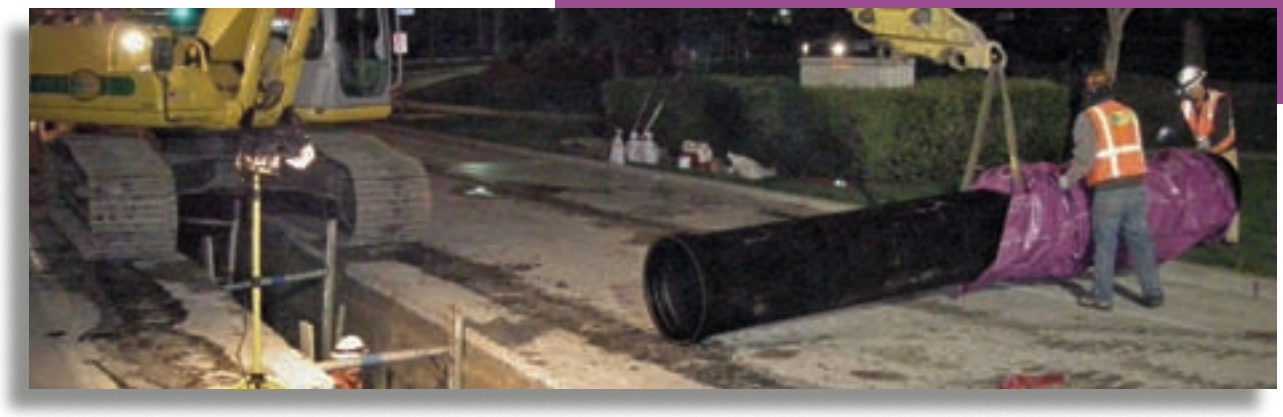
- 2.1.7.1. Target 2010, water recycling accounts for five percent of total water use in Santa Clara County.
- 2.1.7.2. Target 2020, water recycling accounts for ten percent of total water use in Santa Clara County.

Valley Water's 2003 update to the Integrated Water Resources Planning Study and the 2005 Urban Water Management Plan identified water recycling and desalination, along with water conservation, as key components in meeting future dry year shortfalls.

The 2005 Urban Water Management Plan specifically states that, "the difference shown between recycled water projection and the Valley Water target in 2010 and 2020 will potentially be achieved by additional investments in recycled water projects including advanced treatment of recycled water, groundwater recharge and streamflow augmentation."

The 2005 Urban Water Management Plan's projection for recycled water in the year 2010 is almost 17,000 acre-feet. This represents a shortfall of approximately 2,500 acre-feet from the Board's 5 percent target for 2010. Similarly, the 2020 projection estimates that, at the current levels of effort, recycled water expansion in 2020 will only be 25,000 acre-feet, which is an almost 15,000 acre-feet shortfall from the Board's 10 percent target of 40,000 acre-feet. However, if recycled water use is to reach Board targets, significant investment in recycled water expansion projects will need to be made.

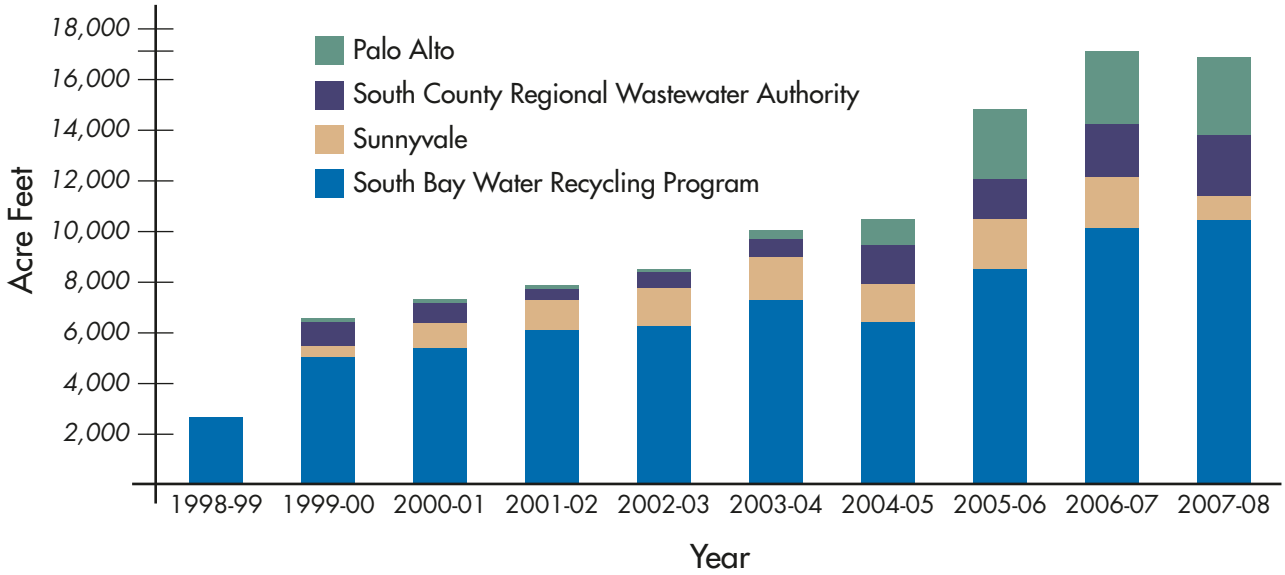
Valley Water sees desalination as another potentially viable way to diversify its water supply portfolio and increase supply reliability. The 2003 Integrated Water Resources Planning Study identified two preliminary objectives for desalination: augmentation of the district's current water resources, and creation of greater drought or emergency reliability by serving as a consistent, supplemental water supply source.



Installing recycled water pipeline.

COUNTYWIDE RECYCLED WATER USED (IN ACRE FEET)

Fiscal Year	*SBWRP*	*Sunnyvale*	*SCRWA*	*Palo Alto*	*Total*
1998-1999	2,357	0	0	0	**2,357**
1999-2000	5,002	439	896	63	**6,401**
2000-2001	5,409	944	708	63	**7,124**
2001-2002	6,037	1,210	487	66	**7,800**
2002-2003	6,177	1,602	536	66	**8,381**
2003-2004	7,245	1,816	619	200	**9,880**
2004-2005	6,320	1,786	1,616	1,009	**10,731**
2005-2006	8,582	1,994	1,671	2,738	**14,985**
2006-2007	10,100	2,078	2,035	2,765	**16,978**
2007-2008	10,386	1,157	2,311	2,878	**16,732**
2010-2011	(district policy target: 5% by 2010)				**19,300** - 20,000 (targeted)



Valley Water's Board Ends Policy has targeted 5% of total county water supply in 2010 to be met by recycled water, i.e., approximately 19,300 acre foot/year

Valley Water's approach to recycled water expansion is to develop partnerships with the cities and publicly owned agencies that produce and/or distribute recycled water. Valley Water has entered into recycling partnerships with all four recycled water producers in Santa Clara County: the South Bay Water Recycling Program (SBWR) operating out of the San Jose/Santa Clara Water Pollution Control Plant, the Sunnyvale Water Pollution Control Plant (Sunnyvale WPCP), the Palo Alto Regional Water Quality Control Plant, and the South County Regional Wastewater Authority (SCRWA) in Gilroy.

Pilot brackish groundwater desalination effort in Gilroy using reverse osmosis membrane technology.

Pilot Desalination at Mallard Slough, East Contra Costa. Part of district's Regional Desalination Project (RDP) effort.

Martin Luther King, Jr. Library in downtown San Jose is using recycled water for toilet flushing and in its cooling tower.

SOUTH BAY WATER RECYCLING

The South Bay Water Recycling (SBWR) system was implemented to protect salt marsh habitat of two endangered species. SBWR is owned by the San Jose/Santa Clara Pollution Control Plant, and operated by the City of San Jose. SBWR currently distributes approximately 10,000 acre-feet of recycled water annually to over 550 customers throughout Silicon Valley for irrigation and industrial use. Some of the larger irrigation customers include The Villages Golf and Country Club, Oak Hill Cemetery and the Santa Clara Golf and Tennis Club. Top industrial customers include Metcalf Energy Center, the Don von Raesfeld Power Plant, California Paperboard in Santa Clara, and San Jose State University.

In 2008, the system expanded the recycled water use to a car wash in the north San Jose area. Plans are already underway to extend recycled water to the Mineta-San Jose International Airport for car wash and toilet flushing.

Valley Water has been working with the City of San Jose on its recycled water program since 1994, providing financial assistance and acting as a liaison between water retailers. Valley Water provided engineering design services for the backbone pipelines of SBWR. In addition, the district has provided financial incentive since 1995 for recycled water used to displace potable water. In FY 07/08, Valley Water provided over $1 million in financial incentives to the SBWR used to offset the demand for district potable water in Valley Water's service area. This offsets the need for the district to invest in new supplies. The potable water thus conserved could then be used to recharge the groundwater basin, stored in the local reservoir or in Valley Water's banking facilities, or transferred to other water agencies. Over the last ten years, SBWR recycled water has offset over 67,000 acre-feet, which is equivalent to 32 million kW-h of energy savings and reduction of 7,000 metric tons of CO_2.

Since 2006, Valley Water and the City of San Jose have been jointly developing the advanced recycled water treatment facility (AWT) to enhance recycled water quality to expand its marketability and aggressively protect the groundwater basin. Valley Water received a state grant of approximately $3 million toward this project. In addition, the U.S. Congress authorized $13.75 million in federal funding for the project. The total estimated cost of the project is approximately $52 million inclusive of costs for engineering planning, design, CEQA process, construction and construction management. At the end of the fiscal year, the project has completed the planning phase and is in the 30% design phase.

Valley Water and the City of San Jose both recognized the mutual benefits of recycled water and the AWT project. The elected officials of the agencies formed the Recycled Water Liaison Committee (Committee) to negotiate a long-term partnership agreement which lays out the cost share arrangement for the AWT. The committee comprises three district board members, two City of San Jose council members, and the mayor of the City of Santa Clara. The committee will meet monthly in the second half of 2008. Management staff of these agencies have been meeting frequently to coordinate and support this effort. Ultimately, Valley Water intends to integrate recycled water into Valley Water's diversified water supply portfolio, and meet the Board's target of 10% recycled water in the total Santa Clara County water supply. The City of San Jose's goal is to beneficially reuse 100% of its wastewater consistent to the City's Green Vision Goal #6.

PALO ALTO WATER QUALITY CONTROL PLANT

The Palo Alto Regional Water Quality Control Plant (RWQCP) serves Palo Alto, Mountain View, Los Altos, Los Altos Hills, Stanford University and the East Palo Alto Sanitary District. Total usage also includes recycled water for a local wetland that was only made possible by recycled water.

In 2005, RWQCP completed the planning phase of its Palo Alto/Mountain View Pipeline Extension with the goal of replacing the existing pipeline to the Shoreline Golf Course and extending the pipeline to the Mountain View-Moffett area east of Highway 101. The proposed pipeline follows the levees along Matadero Creek, and will be located adjacent to East Bayshore towards Mountain View. The pipeline replacement helps fulfill RWQCP permit requirements. The RWQCP is required to operate and maintain the Water Reuse Program to mitigate the discharge of treated wastewater to San Francisco Bay.

Engineering and design of this project started in summer 2005, and construction began in summer 2007. The project cost will be shared between the RWQCP and the cities of Palo Alto and Mountain View and will receive up to $4 million in state Proposition 50, Chapter 7, grants. The construction cost of this project is approximately $16 million. The project sponsors have also applied for other state and federal grants to offset this cost.

In June 2008, Valley Water and Stanford University entered a lease agreement for leasing the District's skid mounted Reverse Osmosis equipment to Stanford to conduct a pilot study in the RWQCP. The objective of the study is to evaluate the feasibility of desalinating RWQCP recycled water using RO to accomplish the following specific objectives:

1. Quantifying flux and rejection as a function of water recovery.
2. Optimizing chemical addition (anti-scaling agents) for minimization of fouling and cleaning procedures.
3. Evaluating the use of different RO membranes for recycled water desalination.
4. Study fouling processes.

Recycled water ground breaking by elected officials for Palo Alto and Mtn. View at Bayshore & 101on November 7, 2007.

In June 2008, Valley Water and Stanford University entered into a lease agreement for equipment used for a pilot study regarding desalination.

SUPPORT FOR SUNNYVALE'S RECYCLED WATER PROGRAM

The use of recycled water in the City of Sunnyvale has experienced a significant decrease in FY 07-08 due to the shut off of the recycled water system between March and May in 2008.

Valley Water has provided a financial incentive to the City of Sunnyvale's water recycling program since 1997 at the rate of $115 per acre-foot of recycled water used to offset potable water. The reimbursement by the district helps the City offset the deficit between revenues and expenses, and enables the City to make additional capital improvements to increase system reliability and expand system capacity. Valley Water and Sunnyvale have on-going meetings to discuss other forms of partnership that will assist in the expansion of recycled water.

The Sunnyvale Water Pollution Control Plant (WPCP) continues working on the expansion of its water recycling systems in order to meet state and federal discharge requirements. Staff from the City and the district have had several discussions on developing a long-term comprehensive operating strategy and on near-term recycled water expansion opportunities including services to Moffett Field Golf Course.

SOUTH COUNTY REGIONAL WASTEWATER AUTHORITY

In south Santa Clara County, Valley Water is a wholesaler of recycled water. The South County Regional Wastewater Authority (SCRWA) produces recycled water and the City of Gilroy is the retailer. Valley Water, the City of Gilroy, and SCRWA have producer-wholesaler-retailer agreements in place delineating their respective roles and responsibilities. This differs from arrangements in the north part of the county, where Valley Water is not a producer/wholesaler/retailer. Valley Water takes on partnership roles and enters agreements for joint pipeline construction projects, or joint water quality studies that lead toward the goal of expanding recycled water used in the county.

Since 2006, Valley Water and SCRWA jointly completed the Immediate-term phase of the South County Recycled Water Master Plan. The Immediate-term phase included the construction of 4,800 feet of 20-inch pipelines, a 3 MG reservoir and the upgrade of the filtration capacity from 3 MGD to 9 MGD. These projects were critical and

immediately needed to expand recycled water capacity and operational efficiency. They enabled the system to operate 24 hours a day, compared to the daytime-only operation prior to the upgrade. Approximately 25% of the construction of the Immediate-term phase was funded by a state grant.

As the result of the upgrade, recycled water delivery directly from Valley Water's distribution system (excludes SCRWA's utility water use) roughly doubled from 2006. Overall, recycled water demand continued to be strong in 2008. By June 30, 2008, the South County Recycled Water System had delivered 2,311 acre-feet of recycled water, compared to 2,035 acre-feet in 2007, representing a 13.6% year over year increase. Excluding SCRWA's utility water use, landscaping irrigation continued to represent the largest category at about 50% of total water reuse. Agricultural and industrial uses of recycled water each accounts for approximately 25%.

It is expected that recycled water delivery in South County will continue to increase significantly in 2009 due to the continued ramp-up of Calpine's cogeneration plant. However, the distribution system, which consists of a 12-inch backbone pipeline, is operating at its maximum capacity. Pipeline upgrades are underway and will be implemented by 2010. The project is authorized by the U.S. Congress for up to 25% in federal funding assistance.

The significant increase in recycled water in South County in 2008 primarily reflects the following:

- Calpine's cogeneration plant (formerly Gilroy Foods) started using recycled water for its cooling towers in April 2008.
- Conversion to recycled water by the Gilroy Golf Course
- Dry weather resulting in increased use of water for irrigation
- New commercial development using recycled water for onsite irrigation.

BAY AREA REGIONAL DESALINATION PROJECT

Valley Water is pursuing desalination projects to:

- Provide replacement sources of water during emergencies such as earthquakes
- Provide a supplemental supply source during extended drought periods
- Allow other major facilities, such as treatment plants, transmission mains and pump stations, to be taken out of service for an extended period of time for maintenance or repairs
- Increase the diversity of the agencies' water supply portfolio by providing a full-time supplemental water supply, which would increase reliability

The Bay Area's four largest water agencies, the Contra Costa Water District, the East Bay Municipal Utility District, the San Francisco Public Utilities Commission, and the Santa Clara Valley Water District, are jointly exploring the development of regional desalination facilities that would benefit over 5.4 million Bay Area residents and businesses served by these agencies. The Bay Area Regional Desalination Project could consist of one or more desalination facilities, with an ultimate total capacity of up to 71 million gallons per day.

The Bay Area's four largest water agencies are jointly exploring the development of regional desalination facilities that would benefit over 5.4 million Bay Area residents and businesses.

Valley Water intern Justin Finch provides a hands-on demonstration of how the wastewater treatment process cleans water and allows it to be recycled.

Valley Water was one of the two winners nationwide for the WateReuse 2007 Public Education Program of the Year Award. Valley Water's application for the award focused on the district's water awareness and water recycling outreach program. This multi-pronged program focused on educating and informing the public on the value of water and water recycling.

The award application summarized how Valley Water is continuously working on educating school children, youth and the community about re-using water. These young people will know the beneficial use of recycled water and water use efficiency and will share that knowledge with their parents. The application highlighted the sheer numbers of school children reached by Valley Water's very strong school outreach program, the feedback from teachers, and the curriculum and supplemental materials distributed to classes in Santa Clara County by the district, including WateReuse's publication "Give Water a Second Chance… Recycle It!"

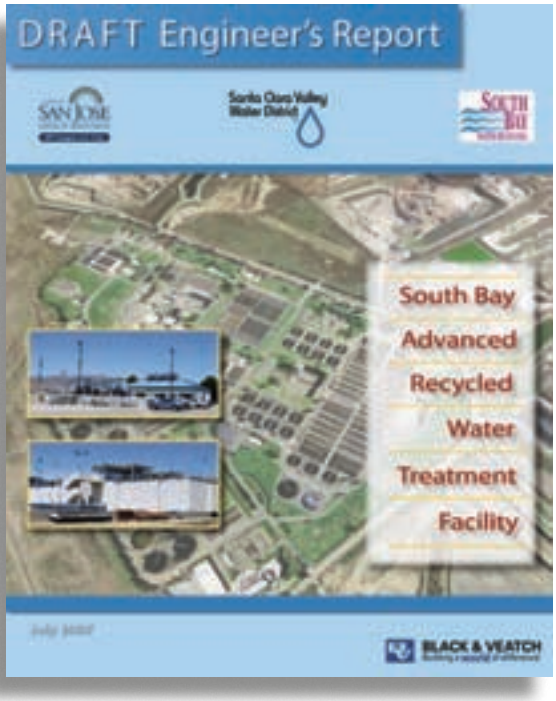
The Public Education award was presented to the district at WateReuse's Annual Conference in Tampa, Florida on September 10, 2007. The award recognizes the district's exceptional investment of time and resources towards the goal of educating the people of Santa Clara County of the value and the benefits of recycled water.

Some of the ways Valley Water conducted public education on recycled water included:

- A table top display used at public events depicting how tertiary-treated recycled water is produced, which explained how the technology used and the rigorous monitoring makes recycled water safe.
- A brochure and pamphlet produced and distributed by Valley Water to the public at events to explain the safety and benefits of recycled water.
- Media outreach via press releases by Valley Water when new recycled water facilities come on-line; for example, the recent South County recycled water distribution pipelines at the Gilroy Sports Park.
- Valley Water's lead in hosting the bi-monthly water recycling retailers' subcommittee meetings to meet, discuss and resolve issues pertaining to the expansion of recycled water.
- Valley Water's water recycling information on its external website explaining the benefits of recycled water to the community.
- Valley Water's own outreach within the organization; for example, a panel discussion on recycled water quality, regulatory issues and potential future uses increased internal staff's understanding of recycled water.

NETWORKING WITH CITIES AND WASTEWATER TREATMENT PLANTS

Valley Water networks with area cities and wastewater treatment plants to ensure the costs of future water supply and sewage treatment are contained to provide the most efficient use of resources for the community. Valley Water also provides staff support for its Water Retailers Recycling Subcommittee, Agricultural Water Advisory Committee and Landscape Advisory Committee. Staff also track technical and regulatory developments that affect the production and use of recycled water, and participate in statewide recycling organizations and activities.



Draft Engineer's Report on the South Bay Advanced Recycled Water Treatment Facility.

BAY AREA RECYCLED WATER COALITION

A Bay Area Regional partnership was formed in the 1990's to secure federal funding under Title XVI of the 1992 Reclamation Wastewater and Groundwater Study & Facilities Act (PL 102-575). Seventeen Bay Area water and wastewater agencies studied opportunities to use recycled treated wastewater for beneficial uses.

The Bay Area Recycled Water Master Plan, completed in 1999, identified opportunities to use 125,000 acre-feet per year (AF/yr) by 2010, and 240,000 AF/yr by 2025.

On March 14, 2007, Congressman George Miller, together with 7 Bay Area Cosponsors, introduced HR 1526 to provide Title XVI authorization for seven new projects. The bill also supported efforts to secure final appropriations for the first phase of a San Jose project approved in 1992. On July 23, 2007, the House of Representatives passed HR 1526. Senators Dianne Feinstein and Barbara Boxer introduced a companion bill, 1475, on May 24, 2007. Ultimately, S 1475 and HR 1526 were included in S 2739 which passed the Senate on April 10 and the House on April 29, 2008. It was signed into law by President Bush on May 8, 2008, as Public Law 110-229. FY 2009 appropriations are currently being sought for the Pittsburg, Antioch, Pacifica, Palo Alto/Mountain View, and Redwood City projects in order to complement 75% state and local cost commitments and required schedules, and for the first phase of the San Jose project.

In FY 07/08, the district, along with its regional partners, received federal authorization for a total of three new projects, including the following:

- $7.25 million for the South County Recycled Water Project.
- $13.75 million for Advanced Treated Recycled Water Project.
- $4.0 million for the Bay Area Regional Desalination Project.

Valley Water staff conducting research for the streamflow augmentation project.

Valley Water governance policies call for the expansion of water recycling in Santa Clara County, while at the same time ensuring that groundwater basins are protected from threats of contamination. To fulfill these goals, Valley Water is working to identify new markets and uses for recycled water while also conducting research to evaluate the effects that existing and planned recycled water projects may have on groundwater quality. While recycled water is currently used for large landscape irrigation, agriculture, and some industrial processes, it may also have uses for environmental purposes, such as enhancing stream flows, reservoirs and wetlands. Advanced treated recycled water is under consideration for future groundwater recharge. Expanding recycled water applications will require increased monitoring of soil and groundwater quality, as well as advanced levels of treatment, depending on where and how recycled water is used.

Research will also investigate treatment methods to expand water recycling options and protect groundwater. Current research studies and recently completed studies are described below.

BAY AREA REGIONAL DESALINATION PROJECT

The four largest San Francisco Bay Area water suppliers (SCVWD, EBMUD, SFPUC, CCWD) have established a partnership to evaluate the feasibility of a regional desalination plant to provide water for 5.4 million residents to meet water supply reliability and emergency needs. The joint venture began in 2003, and the partnership completed the pre-feasibility work. The study participants were recent joint recipients of $249,950 Proposition 50 funds and conducted an approximately $500,000 feasibility study. The four agencies will also receive almost $1 million towards the pilot phase of this project. The agencies were authorized in FY 07/08 to receive $4 million in funding for this project from the Federal Water Resources Development Act.

PAJARO WATERSHED BRACKISH GROUNDWATER DESALINATION FEASIBILITY STUDY

Valley Water and San Benito County Water District are the joint recipients of $245,000 in Proposition 50 grants to conduct a $490,000 brackish water feasibility study in the Pajaro River basin. Pilot testing in the Pajaro as well as feasibility evaluations were conducted in FY 06-07.

PALO ALTO/MOUNTAIN VIEW/ SAN JOSE SOLUTIONS PROJECT

This project evaluated the limits of the sustainable use of recycled water for landscape irrigation. Soils from throughout the county were tested at UC Davis against waters varying in sodium and total salt concentration to determine the effect of water quality on soil structure and, consequently, infiltration rate.

The project also engaged researchers in the horticulture department at UC Davis to determine the sodium, chloride and salinity tolerances of Coast Redwoods. Valley Water formulated site-specific, best management practices for recycled water use for the sites in Santa Clara County that were involved in the project.

THE FEASIBILITY OF BRACKISH GROUNDWATER REUSE

This project will investigate the feasibility of implementing brackish groundwater reuse in Santa Clara County to supplement expected shortages in future supplies of potable water. It will have the potential to identify a new source of supply, and will demonstrate the technical and economic feasibility of treating brackish groundwater with state-of-the-art technology to a quality suitable for beneficial uses. This is work with Stanford University using a grant from the California Department of Water Resources.

IMPACT EVALUATION OF STREAMFLOW AUGMENTATION WITH TERTIARY RECYCLED WATER

The goal of this project was to determine whether augmenting streamflow with recycled water was feasible within economic, environmental, and countywide policy objectives for water supply management. The project evaluates the impact to the water quality of the stream, surface water, and groundwater and provides data that would help determine future plans or studies for streamflow augmentation. Valley Water worked with Stanford University with funding from a DWR grant. The district has halted this project due to evidence from the Stanford researchers showing that the concentration of a perfluorochemical, perfluorooctane sulfonate (PFOS), in the tertiary-treated recycled water effluent (from South Bay Water Recycling) that would be used for this project exceeds a recently identified threshold concentration necessary for the protection of the health of birds (trophic level IV avian species). As previously described, the district is currently working with South Bay Water Recycling to design an advanced treatment recycled water facility to improve the water quality of recycled water. Future streamflow augmentation projects with advanced treated recycled water or future streamflow augmentation projects in different stream locations in the county using different sources of recycled water may still be feasible and are being explored.

STUDY OF GROUNDWATER IMPACTS FROM THE EXPANDED USE OF RECYCLED WATER FOR IRRIGATION

This study began in FY 06-07 and is jointly conducted by the Groundwater Management and the Water Use Efficiency units. The study will conduct a year-long soil-column pilot study that evaluates the attenuation of a variety of water quality constituents through unsaturated and saturated soil columns packed with native soils and loaded with tertiary recycled water. The study will also map the groundwater impact sensitivity due to the use of recycled water throughout the Santa Clara County.

Santa Clara Valley Water District

5750 Almaden Expressway • San Jose, CA 95118 • (408) 265-2600 • www.valleywater.org

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Water Use Efficiency Program

YEAR END REPORT

FISCAL YEAR 2007-2008